As a result, particularly in the case of internal combustion engines which are operated with a stoichiometric air/fuel ratio, this method leads to undesirably high costs.

A method for diagnosing a fuel supply system is known from WO 00/52319. Depending on a test result, to determine whether or not an output signal of a lambda regulation system is greater than a predefined threshold value over a predetermined period, a permanent error of the high-pressure injection valves of the internal combustion engine is detected.

A method for checking the functionality of a variable valve control system for an internal combustion engine is known From DE 198 57 183 A1. A main load signal is a measuring signal of an air mass sensor. A secondary load signal is derived from a opening angle a throttle valve in the intake pipe. The functionality of the variable valve control system is evaluated on the basis of comparing a main load signal and a secondary load signal.

A method is known From DE 42 43 493 A1, in which, in stationary operating modes, starting from the rotational speed signal and a signal indicating the amount of fuel which is injected, the expected value for the output signal of the lambda probe is predefined. Therefore, an error is detected if the expected value for the output signal of the lambda probe deviates by more than one threshold value from the measured value of the lambda probe.

A method is known From DE 40 03 752 in which, by a signal output by a lambda probe for a deviation of the probe signal exceeding a threshold value, the deviation is allocated to that cylinder of the internal combustion engine for which the exhaust gas has already been detected by the lambda probe.

It is known from DE 197 25 567 A1 that an air/fuel ratio correction coefficient according to the difference between the air/fuel ratio and the desired air/fuel ratio has to be formed. An error in an air/fuel ratio sensor or a microprocessor is detected on the basis of an error decision element which is derived from the air/fuel ratio, determined by the air/fuel ratio sensor and the air/fuel ratio correction coefficient.

It is known from DE 199 46 962 C1 that in the case of a lean operation of an internal combustion engine, a plausibility check must be carried out. This consists in requesting whether or not the exhaust gas composition shown in the exhaust gas tract corresponds to a fuel/air mixture lying outside a predefined operating window. In the case of implausibility, a changeover to stoichiometric operation of the internal combustion engine will take place in which case a lambda regulation system is active. The torque will then be monitored in which an actual torque is determined by drawing in a combustion air mass by using a performance graph. In addition, the desired torque requested by the control unit is recorded. If the difference between the desired and the actual torque exceeds a threshold value, then the internal combustion engine will change over to an emergency run.

Therefore, the object of the invention is to create a simple and at the same time reliable method for monitoring a control unit for an internal combustion engine.

The object of the invention is achieved by the features of the independent claims.

The outstanding feature of the invention is the fact that sufficiently safe operation of the control unit is possible without having to monitor the control elements for the air path. Particularly for modern engine concepts this is a decisive advantage, because these concepts often have several control elements for adjusting the air mass such as, for example, throttle valves, the variable valve train and a turbocharger. It is therefore possible to dispense with redundant sensor arrangements for the individual element in the case of these control elements.

In an advantageous embodiment of the invention, the variable, which characterizes the output parameter of a lambda regulation system, is the output parameter itself. As a result, monitoring is a particularly simple process and at the same time can also be carried out accurately.

Further advantageous embodiments of the invention are defined in the subclaims.

Embodiments of the invention are described in more detail with reference to the drawings. The figures show:

Figure 1 a block diagram of a control unit for an internal combustion engine and a device for monitoring a control unit,